LISTING OF CLAIMS

1. *(currently amended):* A process for thermal sterilization of ventilated air of a site that requires ~~requiring a~~ low levels of microorganism contamination, wherein ~~characterized in that~~ the air to be sterilized is moved,

by forced circulation in a cycling operation with alternative flow[[s]]] cycles in opposite directions by use of an air circulator [[(1)]] and feed valves [[(3)]] that can reverse the direction of the air flow, ~~and~~

across a thermal sterilization chamber [[(12)]] that comprises an inlet, an outlet, ~~containing~~ an electrical resistor [[(7)]] and a first and a second stack of metallic grilles or screens, wherein the resistor is positioned between the two stacks ~~of metallic grilles (8,9)~~ and disposed perpendicularly to the grilles or screens ~~of these stacks~~.

2. *(currently amended):* A process according to claim 1, wherein ~~characterized in that a~~ dissipation of ~~the~~ kinetic energy of the air flow is achieved by transit through ~~empty zones or~~ plenums [[(5,6)]] located at the inlet and the outlet of the ~~thermal sterilization~~ chamber ~~(8-7-9)~~.

3. *(currently amended):* A process according to claim 1 ~~or 2~~, wherein ~~characterized in that~~ the frequency of inversion of the direction of air flow ~~direction~~ is greater than one inversion per minute.

4 *(currently amended):* A process according to claim 1 ~~any one of claims 1 to 3,~~ wherein ~~characterized in that~~ a cycle comprises ~~is constituted of~~ two partial ~~half~~ cycles ~~, preferably of equal duration~~, and ~~characterized in that the~~ air that is untreated at the end of each partial ~~half~~ cycle is recycled to the air circulator inlet [[(1)]].

5. *(currently amended):* A process according to claim 4 ~~any one of claims 2 to 4,~~ wherein, during the first partial cycle, the ~~characterized in that~~ air circulator ~~[[(1)]] is disposed in such a manner as to~~ displaces ~~the~~ inflowing ~~inlet~~ ambient air: ~~during the first half cycle,~~

(a) ~~across~~ through one of the feed valves, ~~(3), then the~~ ~~an empty zone (5) or~~

(b) across said plenum,

(c) ~~then in~~ across the first stack ~~one of the two stacks~~ of metallic grilles [[(8)]],

(d) ~~then~~ into a heating zone [[(7)]],

(e) ~~then in~~ across the second stack of metallic grilles [[(9)]],

(f) ~~then~~ across [[in]] the second plenum [[(6)]],

(g) ~~then~~ through [[in]] the other feed valve [[(3)]],

(h) ~~then~~, ~~finally,~~ to the site to be ventilated or ~~across~~ through a purge valve, and

wherein the feed valves are inverted at the end of said first partial cycle to initiate the second partial cycle during which the air flows in the opposite direction ~~the air follows an inverse path after the inversion of the feed valves (3), during the full duration of the second half-cycle~~.

6. *(**currently** amended):* An apparatus for thermal sterilization of air ventilating a site that requires a low level of microorganism contamination, which apparatus creates an air circuit, the apparatus comprising

(a) a thermal sterilization chamber [[(12)]] which comprises:

(i) an air inlet and outlet

(ii) two stacks of metallic grilles or screens; and

(iii) an electrical resistor that is disposed between said two stacks. and

(b) means for generating an air flow and forcing and regulating circulation of the air across the chamber, which means comprise ~~for example~~ ,

(i) a centrifugal air circulator; ~~(1), and~~

(ii) feed valves [[(3)]]; and

(iii) a cyclic programming system for two partial or half cycles,

which means permit directing the air flow in either of two directions to one or the other side of the chamber in a path that is perpendicular to the stacking of the metallic grilles.

~~characterized in that the thermal sterilization chamber contains an electrical resistor (7) positioned between two stacks of metallic grilles (8,9), and in that said means for forced circulation of the air across the thermal sterilization chamber comprise a cyclic programming system, solenoid valves (3) and an air circuit that permits forcing the direction of the air flow produced, alternatively, into one side or the other of the chamber, perpendicularly to the metallic grilles of the stacks (8,9).~~

7. *(**currently** amended):* An apparatus according to claim 6, wherein ~~characterized in that~~ the air circuit comprises two ~~empty zones or~~ plenums ~~(5,6)~~ located on the inlet and [[/]] outlet sides ~~(11)~~ of the ~~thermal~~ sterilization chamber ~~(8-7-9)~~.

8. *(currently amended):* An apparatus according to claim 7, wherein ~~characterized in that~~ the plenums ~~empty zones (5,6) located on the inlet/outlet sides (11) of the thermal sterilization chamber (12)~~ have a volume greater than or equal to the volume of the stacks ~~(8,9)~~.

9. *(currently amended):* An apparatus according to claim 7, wherein ~~any one of claims 6 to 8~~, ~~characterized in that~~ the face of the stacks located between the stack and the plenum is equipped with a perforated plate ~~(11)~~ having ~~presenting~~ multiple apertures of different diameters.

10. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 9, characterized in that~~ wherein the metallic grilles are ~~obtained from continuous metallic grilles~~ made of continuous wires having [[of]] a diameter ~~comprising~~ between 0.1 mm and 1 mm.

11. *(currently amended):* An apparatus according to claim 6 wherein ~~any one of claims 6 to 9, characterized in that~~ the metallic grilles ~~(8,9) are replaced by the~~ or screens are metallic screens made of expanded metal.

12. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 11, characterized in that~~ wherein the metallic grilles or screens ~~(8,9)~~ have a volumetric porosity that is between 75% and 95%.

13. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 12, characterized in that~~ wherein the metallic grilles or screens ~~constituting the stacks (8,9)~~ are made of a metal characterized by ~~of very~~ high thermal conductivity selected from the group consisting of ~~, for example in~~ aluminum, [[or]] copper, [[or]] and galvanized steel.

14. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 13, characterized in that~~ wherein each stack ~~(8,9)~~ has a high thermal conductivity in a cross-section perpendicular to the direction of air flow and negligible thermal conductivity in the direction of the air flow.

15. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 14, characterized in that~~ wherein the electrical resistor ~~[[(7)]]is located in between the two stacks and that it has been designed to~~ has ~~offer~~ a large heat exchange surface in any part of the ~~square or rectangular~~ cross-section of the chamber [[(12)]].

16. *(currently amended):* An apparatus according to claim 6 ~~any one of claims 6 to 15~~, ~~characterized in~~ that ~~it~~ comprises purge valves [[(4)]] that allow ~~allowing~~ recycling of ~~the~~ untreated air to the air circulator ~~fan~~ inlet ~~at the end of each half-cycle~~.

17. *(currently amended):* An apparatus according to claim 6, wherein ~~any one of claims 6 to 16, characterized in that~~ the cross-section of the sterilization chamber [[~~(12)~~]] is square or rectangular and the valves comprise flaps having a length identical to the length of the longest side of the cross-section.

18. (new) A process according to claim 4 wherein the partial cycles are half cycles of equal duration.

19. (new) A process according to claim 18 wherein, after the first half cycle, the direction of flow through the feed valves is inverted so that during the full duration of the second half cycle, the air flows in a direction that is opposite to the direction in the first half cycle.

20. (new) An apparatus according to claim 6 wherein the feed valves are solenoid-operated valves.